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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/857,581	06/05/2001	Gary M. Fader	BB-1339	6372

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Lori Y Beardell  
E I du Pont de Nemours & Company  
Legal Patents  
Wilmington, DE 19898

EXAMINER

STEADMAN, DAVID J

ART UNIT

PAPER NUMBER

1652

DATE MAILED: 12/04/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/857,581

Applicant(s)

FADER ET AL.

Examiner

David J. Steadman

Art Unit

1652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-50 are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Application Status***

Claims 1-50 are pending in the application.

***Lack of Unity***

1. Lack of unity is required under 35 U.S.C. 121 and 372. This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

- I. Claim(s) 1, 3-19, 26, 28-33, 44, and 45, drawn to a nucleic acid sequence with isoflavone synthase activity, a chimeric nucleic acid sequence, a transformed host cell, and a method of altering the level of expression of isoflavone synthase.
- II. Claim(s) 2, drawn to a polypeptide variant of SEQ ID NO:66.
- III. Claim(s) 20-25 and 34-40, drawn to a transgenic plant, a seed from a transgenic plant, and a method of producing a transgenic plant with increased isoflavonoid content.
- IV. Claim(s) 27 and 29-33, drawn to a method of increasing the amount of an isoflavonoid in a host cell.
- V. Claim(s) 41-43, drawn to a method of obtaining a nucleic acid sequence encoding a plant isoflavone synthase or a portion thereof.
- VI. Claim(s) 46-48, drawn to a method of altering the level of isoflavonoids in a cell by exposing said cell to stress.
- VII. Claim(s) 46, 47, 49, and 50, drawn to drawn to a method of altering the level of isoflavonoids in a cell by exposing said cell to a transcription factor.

2. If applicant should elect any one of inventions I or III-VII above, restriction to one of the following inventions listed as Groups a-u is also required under 35 USC 121. This is not a species election.

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| a. SEQ ID NO:1 or a sequence encoding SEQ ID NO:2. | c. SEQ ID NO:15 or a sequence encoding SEQ ID NO:16. |
| b. a sequence encoding SEQ ID NO:10.               | d. SEQ ID NO:17 or a sequence encoding SEQ ID NO:18. |

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| e. SEQ ID NO:19 or a sequence encoding SEQ ID NO:20. | n. SEQ ID NO:37 or a sequence encoding SEQ ID NO:38. |
| f. SEQ ID NO:21 or a sequence encoding SEQ ID NO:22. | o. SEQ ID NO:39 or a sequence encoding SEQ ID NO:40. |
| g. SEQ ID NO:23 or a sequence encoding SEQ ID NO:24. | p. SEQ ID NO:47 or a sequence encoding SEQ ID NO:48. |
| h. SEQ ID NO:25 or a sequence encoding SEQ ID NO:26. | q. SEQ ID NO:54 or a sequence encoding SEQ ID NO:55. |
| i. SEQ ID NO:27 or a sequence encoding SEQ ID NO:28. | r. SEQ ID NO:56 or a sequence encoding SEQ ID NO:57. |
| j. SEQ ID NO:29 or a sequence encoding SEQ ID NO:30. | s. SEQ ID NO:58 or a sequence encoding SEQ ID NO:59. |
| k. SEQ ID NO:31 or a sequence encoding SEQ ID NO:32. | t. SEQ ID NO:60 or a sequence encoding SEQ ID NO:61. |
| l. SEQ ID NO:32 or a sequence encoding SEQ ID NO:34. | u. a sequence encoding SEQ ID NO:66                  |
| m. SEQ ID NO:35 or a sequence encoding SEQ ID NO:36. |  |

3. If applicant should elect the invention of Group II, restriction to one of the following inventions listed as Groups v-iii is also required under 35 USC 121. This is not a species election.

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| v. SEQ ID NO:66 where Xaa10 is Phe or Leu.         | pp. SEQ ID NO:66 where Xaa147 is Lys or Glu.        |
| w. SEQ ID NO:66 where Xaa16 is Ser or Leu.         | qq. SEQ ID NO:66 where Xaa159 is Leu or Phe.        |
| x. SEQ ID NO:66 where Xaa23 is Ser or Thr.         | rr. SEQ ID NO:66 where Xaa162 is Ala or Val.        |
| y. SEQ ID NO:66 where Xaa25 is Ile or Lys.         | ss. SEQ ID NO:66 where Xaa166 is Ser or Gly.        |
| z. SEQ ID NO:66 where Xaa39 is Lys or Arg.         | tt. SEQ ID NO:66 where Xaa170 is Gln or Arg.        |
| aa. SEQ ID NO:66 where Xaa48 is Pro or Leu.        | uu. SEQ ID NO:66 where Xaa175 is Val or Leu.        |
| bb. SEQ ID NO:66 where Xaa60 is Pro or Leu.        | vv. SEQ ID NO:66 where Xaa183 is Ala or Thr.        |
| cc. SEQ ID NO:66 where Xaa73 is Leu or His.        | ww. SEQ ID NO:66 where Xaa187 is Thr or Ile.        |
| dd. SEQ ID NO:66 where Xaa74 is Ser or Tyr.        | xx. SEQ ID NO:66 where Xaa191 is Met or Val.        |
| ee. SEQ ID NO:66 where Xaa95 is Ala or Thr.        | yy. SEQ ID NO:66 where Xaa209 is Phe or Tyr.        |
| ff. SEQ ID NO:66 where Xaa96 is Asn or His.        | zz. SEQ ID NO:66 where Xaa219 is Arg or Trp.        |
| gg. SEQ ID NO:66 where Xaa102 is Asn or Ser.       | aaa. SEQ ID NO:66 where Xaa223 is Tyr or His.       |
| hh. SEQ ID NO:66 where Xaa110 is Ile, Val, or Thr. | bbb. SEQ ID NO:66 where Xaa253 is Gly or Glu.       |
| ii. SEQ ID NO:66 where Xaa112 is Arg or His.       | ccc. SEQ ID NO:66 where Xaa259 is Lys or Glu.       |
| jj. SEQ ID NO:66 where Xaa117 is Asn or Ser.       | ddd. SEQ ID NO:66 where Xaa263 is Val or Asp.       |
| kk. SEQ ID NO:66 where Xaa118 is Ser or Leu.       | eee. SEQ ID NO:66 where Xaa264 is Val, Asp, or Ile. |
| ll. SEQ ID NO:66 where Xaa121 is Met or Arg.       | fff. SEQ ID NO:66 where Xaa268 is Ala or Val.       |
| mm. SEQ ID NO:66 where Xaa122 is Ala or Val.       | ggg. SEQ ID NO:66 where Xaa272 is Phe or Leu.       |
| nn. SEQ ID NO:66 where Xaa124 is Phe or Ile.       | hhh. SEQ ID NO:66 where Xaa285 is Thr or Met.       |
| oo. SEQ ID NO:66 where Xaa129 is Lys or Arg.       | iii. SEQ ID NO:66 where Xaa293 is Glu or Asp.       |

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jjj.	SEQ ID NO:66 where Xaa294 is Thr or Ile.	www.	SEQ ID NO:66 where Xaa393 is Val or Ile.
kkk.	SEQ ID NO:66 where Xaa301 is Phe or Leu.	xxx.	SEQ ID NO:66 where Xaa394 is Leu or Pro.
lll.	SEQ ID NO:66 where Xaa306 is Thr or Ile.	yyy.	SEQ ID NO:66 where Xaa402 is Arg or Lys.
mmm.	SEQ ID NO:66 where Xaa311 is Val or Glu.	zzz.	SEQ ID NO:66 where Xaa404 is Ser or Pro.
nnn.	SEQ ID NO:66 where Xaa312 is Val or Ala.	aaaa.	SEQ ID NO:66 where Xaa413 is Ser or Phe.
ooo.	SEQ ID NO:66 where Xaa325 is Arg or Lys.	bbbb.	SEQ ID NO:66 where Xaa422 is Glu or Gly.
ppp.	SEQ ID NO:66 where Xaa328 is Gln or Glu.	cccc.	SEQ ID NO:66 where Xaa428 is Gly or Arg.
qqq.	SEQ ID NO:66 where Xaa334 is Val or Ala.	dddd.	SEQ ID NO:66 where Xaa429 is Pro or Leu.
rrr.	SEQ ID NO:66 where Xaa342 is Arg or Ile.	eeee.	SEQ ID NO:66 where Xaa435 is Gln or Arg.
sss.	SEQ ID NO:66 where Xaa377 is Thr or Ile.	ffff.	SEQ ID NO:66 where Xaa447 is Arg or Gly.
ttt.	SEQ ID NO:66 where Xaa381 is Glu or Gly.	gggg.	SEQ ID NO:66 where Xaa453 is Asn, Ser, or Ile.
uuu.	SEQ ID NO:66 where Xaa385 is Tyr, His, or Cys.	hhhh.	SEQ ID NO:66 where Xaa459 is Met or Thr.
vvv.	SEQ ID NO:66 where Xaa387 is Ile or Thr.	iiii.	SEQ ID NO:66 where Xaa485 is Asp or Gly.

4. The inventions listed as Groups I-VII and a-iiii do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical feature for the following reasons:

5. Inventions a-u are structurally distinct, thus encoding structurally distinct polypeptides. Because the sequences encode structurally distinct polypeptides, the sequences have different effects. Also, none of the nucleic acids of inventions a-u would render the others obvious to one of ordinary skill in the art.

6. Inventions v-iiii are structurally distinct polypeptides, thus eliciting different antibodies. Because the sequences elicit different antibodies, the sequences have different effects. Also, none of the amino acid sequences of inventions v-iiii would render the others obvious to one of ordinary skill in the art.

7. The polynucleotide of Group I, the polypeptide of Group II, and the transgenic plant of Group III are unrelated and chemically distinct entities capable of separate manufacture, use, and effect.

8. The polynucleotide of Group I does not have unity of invention with the methods of Groups IV-VII as Group I already includes a method of use which comprises unrelated steps to the methods of Groups IV-VII and 37 CFR 1.475 does not provide for the inclusion of multiple methods of use within the main invention.

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9. The polypeptide of Group II and the transgenic plant of Group III do not share any technical feature with the methods of Groups IV-VII.

10. The methods of Groups IV-VII do not share a special technical feature as the methods comprise different steps, utilize different products and yield different results.

11. Because these inventions are distinct for the reasons given above and each of the inventions listed as Groups I-VII and a-iiii requires a separate sequence search and a separate patent and non-patent literature search, the inventions have a lack of unity.


12. Claims 1-50 will be examined to the extent the claims read on the elected subject matter.

13. Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

14. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Steadman, whose telephone number is (703) 308-3934. The Examiner can normally be reached Monday-Thursday from 6:30 am to 5:00 pm. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Ponnathapura Achutamurthy, can be reached at (703) 308-3804. The FAX number for this Group is (703) 308-4242. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Art Unit receptionist whose telephone number is (703) 308-0196.

David J. Steadman, Ph.D.  
Patent Examiner  
Art Unit 1652

  
PONNATHAPURA ACHUTAMURTHY  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1600